

S-100.

WCCF '79

VECTOR 1

TECHNICAL INFORMATION

The VECTOR 1 is an exceptionally versatile general purpose byte-oriented digital computer. It is based on the 8080A Microprocessor and the common S-100 bus structure. The Intel 8080A provided with the VECTOR 1 has 78 basic machine language instructions and a minimum instruction cycle of two microseconds. There is room for up to 64K of directly addressable memory using a parallel 8 bit word/16 bit address and 256 separate input and output devices can be addressed.

DESIGN FEATURES

The VECTOR 1 incorporates improvements in mechanical, thermal, and electrical design compared to competitive computers. A mechanically rigid heavy .093" gauge cabinet retains its structural integrity even with the cover removed. A low noise level fan is standard, and cross ventilation uniformly cools each circuit board. The power supply components transfer their heat directly to the case bottom for cool operation. A line filter is provided to prevent transients on the power line from causing memory errors, a common problem.

EASE OF CONSTRUCTION

The mechanical assembly of the case and card guides is simplified through the use of special fasteners and snap together components. No sheet metal screws are used. By providing a system monitor program on PROM, several advantages are achieved: Wiring cables and unreliable front panel circuitry are eliminated allowing the 8080A MPU to operate as it was intended. The computer can load cassette tapes or communicate with a terminal through an I/O board as soon as the power is turned on, eliminating tedious loading of bootstraps with front panel switches. Since all of the electronic circuitry is on plug-in boards, trouble shooting is simplified.

COMPATIBILITY

All of the current 8080A software is compatible with the VECTOR 1, with the exception of minor patches to the I/O routines, as are most boards for the S-100 bus.

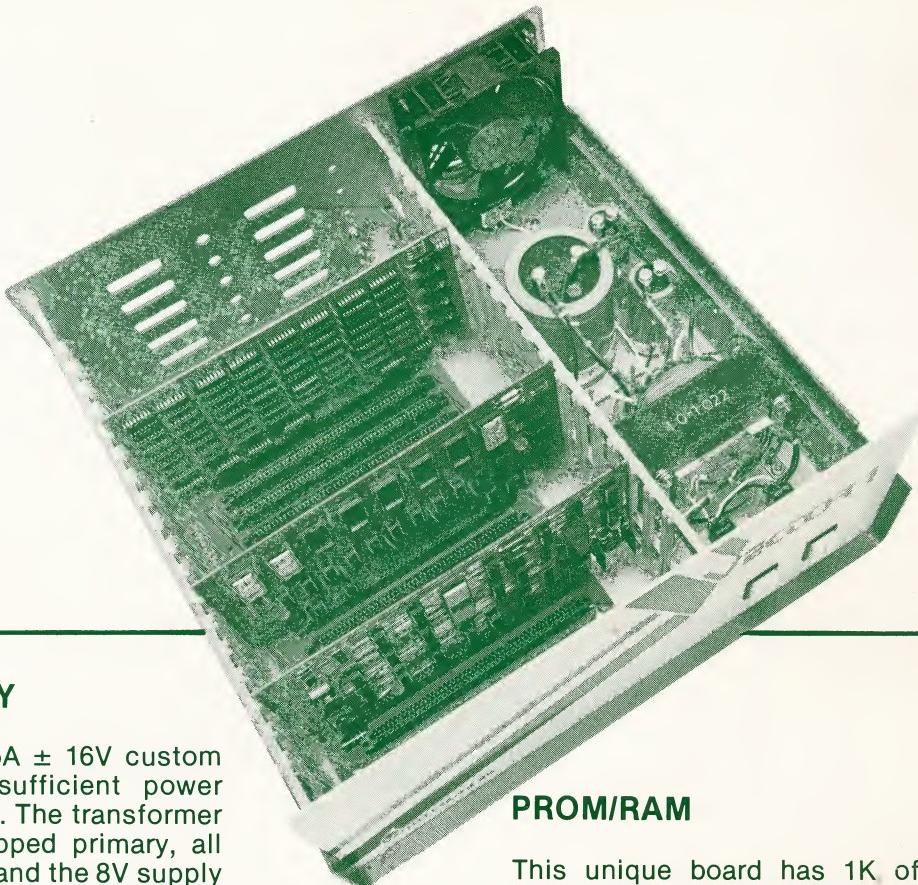


VECTOR 1 Specifications

| | |
|--|-----------------------|
| Number of boards | up to 18 |
| Microprocessor | 8080A |
| Technology | NMOS |
| Data Word Size, Bits | 8 |
| Instruction Word Size, Bits | 8 |
| Clock Frequency | 2 Mhz |
| Add time, Register to Register | |
| Microsec. per data word | 2 |
| Number of Instructions | 78 |
| I/O Word Size Bits | 8 |
| Number of I/O channels | 256 |
| Direct Memory access | Optional |
| Vectored interrupt (8 priority levels) | Std. |
| Software | |
| Monitor or Executive | System Monitor |
| Resident Assembler | ESP-1 |
| Higher-level language | Basic, in development |



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POWER SUPPLY

The 18A 8V and 2.5A \pm 16V custom supply provides sufficient power for a full 18 boards. The transformer has a multiple tapped primary, all class B insulation and the 8V supply has a 150,000 mfd filter capacitor.

MOTHERBOARD

.093" material, soldermasked on both sides, plated through holes, 18 slots, provision for bus termination, .125" x .25" 100 pin connectors.

CPU

The CPU board uses the 8080A Microprocessor and controls and processes all instructions and data within the VECTOR 1 computer. It contains the master timing circuit, eight input and eight output data lines to the bus and control circuits and the interrupt circuitry. The 8214 chip provides the computer with 8 level vectored priority interrupts with a current status register to control the interrupt threshold. Another desirable feature is the real time clock which can be used with the interrupt circuitry to generate timing synchronized with 60 Hz. The VECTOR 1 CPU board also uses the Intel 8224 clock generator, which provides proper crystal controlled clock waveforms.

PROM/RAM

This unique board has 1K of RAM and space for 2K of 1702A type EPROM and a jump-on-reset feature - hit reset and go to any location in memory determined by the first command on the PROM. A powerful 512 byte Monitor capable of 9 commands is programmed on 2 1702A PROMS:

- A ASCII memory dump
- D HEX memory dump
- G Go to and execute program
- L Load program from Tarbell tape cassette interface and execute
- P Program memory from terminal
- R Read Tarbell Cassette
- T Test any block of memory, using a pseudorandom number sequence
- V Verify cassette tape
- W Write Tarbell Cassette

MEMORY BOARD

8K static RAM board, buffered address and data lines, access time 450 ns, no wait states required, hardware 8K memory protect, low power consumption.



VECTOR GRAPHIC INC.

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PRICE LIST - EFFECTIVE APRIL 1, 1977

VECTOR 1 COMPUTER

Custom cabinet, 18 slot Motherboard S-100 Bus with 6 connectors, power supply 18A, 8V; 2.5A \pm 16V, whisper fan, card supports and guides for 6 cards, all hardware, wire and solder. 8080 Based CPU board with vectored priority interrupts, and real time clock. PROM/RAM board with 1K RAM, room for 2K ROM type 1702A. 512 byte monitor, Options A, B C standard, Option D + \$30. Requires I/O board and terminal or video board, keyboard and monitor.

VECTOR 1 without CPU

VECTOR 1 without CPU and PROM/RAM

VECTOR 1 without PROM/RAM

| Order No. | Kit | Order No. Assembled |
|-----------|-----|---------------------|
|-----------|-----|---------------------|

| | | | |
|------|-------|-------|-------|
| V1 A | \$699 | V1 AA | \$849 |
| V1 B | 499 | V1 BA | 699 |
| V1 C | 349 | V1 CA | 499 |
| V1 D | 519 | V1 DA | 719 |

CPU BOARD

8080A microprocessor, 8 level vectored priority interrupts, real time clock.

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|-----|-------|--------|-------|
| CPU | \$150 | CPU 1A | \$190 |
|-----|-------|--------|-------|

PROM/RAM BOARD

1K RAM, space for 2K 1702A type PROMs. Power-on-jump feature.

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|------|-------|-------|-------|
| PR 1 | \$ 89 | PR 1A | \$129 |
|------|-------|-------|-------|

512 BYTE MONITOR ON 2, 1702A PROMS (For use with Tarbell tape interface)

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|---|-------|-----|
| Option A: 3P + S, MITS SIO Rev. 1 | \$ 40 | ... |
| Option B: MITS 2 SIO | 40 | ... |
| Option C: IMSAI SIO 2 | 40 | ... |
| Option D: Polymorphic Video Interface (Includes video driver) | 70 | ... |
| Option E: 3P + S without inverted status bits | 40 | ... |
| Option AV: 3P + S with inverted status bits + VDM driver | 70 | ... |
| Option EV: 3P + S without inverted status bits + VDM driver | 70 | ... |
| Option P: Polymorphic Video Interface Rev. 1.2, (includes video driver) | 70 | ... |
| | 29.50 | ... |

ESP-1 5K ASSEMBLER

8K STATIC RAM BOARD

8192 byte memory, 500 ns access time, sockets, low power

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|-------|-------|
| \$265 | \$305 |
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18 SLOT MOTHERBOARD

15" x 8 1/2" for S-100 Bus, uses most readily available .125" x 0.25" 100 pin connectors. Provision for bus termination, bleeder resistors. Can be used to retrofit ALTAIR^{T.M.}.

| | |
|-------|-----|
| \$ 49 | ... |
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DUAL 50 100 PIN CONNECTORS FOR ABOVE .125" x .25" SPACING

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| \$ 6 | ... |
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CARD GUIDES, for 6 boards

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| \$ 3 | ... |
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POWER SUPPLY KIT

18A, 8V; 2.5A \pm 16V includes transformer, diodes, bridge rectifier, capacitors and hardware. Can be used to retrofit ALTAIR^{T.M.} SUPPLY.

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| \$ 60 | ... |
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TRANSFORMER

18A, 8V; 2.5A, \pm 16V. Primary taps for 110V, 120V, and 130V. Replaces Altair^{T.M.} 8800A transformer.

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| \$ 30 | ... |
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TOP QUALITY CHIP SETS

8080A, 8224, 8212, 8097 (6 chips), 18 MHZ Crystal

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| \$ 39 | ... |
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Prices subject to change without prior notice.

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